

Abstract

A system for ultrasonic imaging utilizing multiple sets of transmit pulses differing in amplitude, frequency, phase, and/or pulse width. One embodiment has phase differences between the k transmit signal as $\frac{360}{k}$ degrees providing for constructive interference of the k^{th} order harmonic pulse, while an amplitude modulation of each transmit profile is constant between sets. These sets of pulses are transmitted into media of interest and received echoes from these pulses are combined to form an averaged signal. The averaged pulses represent the net common mode signal received from each of the transmit sets. This combined signal set is used to reconstruct an ultrasound image based on broad beam reconstruction methodology.